ABSTRACT

VALIDATION *GAS CHROMATOGRAPHY-FID* METHOD FOR ANALYSIS OF ETHANOL CONTENT IN VINEGAR

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Production process of vinegar could be synthesized by chemical or microbiological. In Islam, vinegar must not be consumed if contains ethanol ≥ 1%, because it is categorized into *khamr*. The maximum concentration of vinegar fermentation is 1.0 %. This research was to analyze the alcohol compund that consist in vinegar. The validation method that used in this study are: selectivity, linearity, range, precision, accuracy, LOD and LOQ. The analysis instrument was gas chromatography Agilent 6890 Series GC System, with a Flame Ionization Detector (FID) and a column HP-5 (5% Phenyl 95% Methyl Siloxane), and optimal conditions were obtained by using temperature of inlet and detector of 250°C whilst the temperature of oven programmed initially at 40°C, hold for 5 minutes, and raised to 5°C/min to 200°C. were used in this study. For split ratio was achieved at 50:1 and the injection volume was 1.0µl. The methods were proven selective and demonstrated linearity, precision and accuracy with r = 0.9995; KV = 5.63%; and % recovery = 101.25%, respectively. On the other hand, the methods were proven that the sample contains alcohol. Finally, the result of quantitative ethanol contents analysis in vinegar from Saudi Arabia is $2.28.10^{-2}$ % v/v; and vinegar brand "x" from market in Surabaya is $1.17.10^{-2}$ v/v

Keyword: Vinegar, ethanol, gas chromatography, validation method